VI TELEFILTER Filter Specification TFS 120 - 1/4

Measurement condition

Ambient temperature T_A:	23 °C		
Input power level:	0 dBm.		
Terminating impedances at f_N:	for input:	460 Ω | - 11,2 pF.	
	for output:	440 Ω | - 13,0 pF.	(typical value.)
Q-value of matching elements:	30		

Characteristics

Remark:
Reference level for the relative attenuation a_{rel} of the **TFS 120** is the minimum of the pass band attenuation a_{min}. The minimum of the pass band attenuation a_{min} is defined as the insertion loss a_e . The centre frequency f_C is the arithmetic mean value of the upper and lower frequencies at the **25 dB** filter attenuation level relative to the insertion loss a_e. The nominal frequency f_N is fixed on **120 MHz** without tolerance. The given values for the relative attenuation a_{rel} and for the group delay ripple have to be reached at the frequencies given below also if the centre frequency f_C is shifted due to the temperature coefficient of frequency Tc_f in the operating temperature range and due to a production tolerance for the centre frequency f_C.

Data	typ. value		tolerance / limit	
Insertion loss (Reference level) : a_e	12,50	dB	max 15	dB
Nominal frequency : f_N			120	MHz
Centre frequency f_C at ambient temperature (f_{CAT})	120,01	MHz		
Pass band :			f_N – 100 kHz ..... f_N + 100 kHz	
Bandwidth :				
1 dB - band width	260	kHz	min. 200	kHz
25 dB - band width	764	MHz	max. 800	kHz
Amplitude ripple in pass band (p-p):	0,7	dB	max. 1,0	dB
Relative attenuation a_{rel} :				
f_N ..... f_N ± 100 kHz	-		max. 1	dB
f_N ± 400 kHz ... f_N ± 600 kHz	-		min. 25	dB
f_N ± 600 kHz ... f_N ± 1000 kHz	-		min. 35	dB
f_N ± 1,0 MHz ... f_N ± 35 MHz	-		min. 45	dB
Group delay (mean value in pass band) :	3,81	µs	max. 4,0	µs
Group delay ripple in pass band (p-p) :	100...150	ns	max. 200	ns
Deviation from linear phase in pass band :	-			
Triple transit attenuation compared to main signal	40...50	dB		
Crosstalk attenuation compared to main signal	55...60	dB		
Frequency inversion temperature (T_o)	30 °C			
Temperature coefficient of frequency (Tc_f)	-0,042	ppm/ K²		
Frequency deviation of f_C over temperature T : *):	$\Delta f_C(Hz) = Tc_f \times (T - T_o)^2 \times f_{To}$ (MHz)			
Operating temperature range			- 20 °C ... + 75 °C	
Storage temperature range			- 40 °C ... + 85 °C	
Permissible DC voltage (V_{DC})	-		12	V
Permissible AC voltage (V_{pp})	-		10	V

***)** f_{To} is reference frequency f_C at frequency inversion temperature (T_o)

Generated: **Dunzow W.**

Checked / approved : **Dr. B.Wall.**

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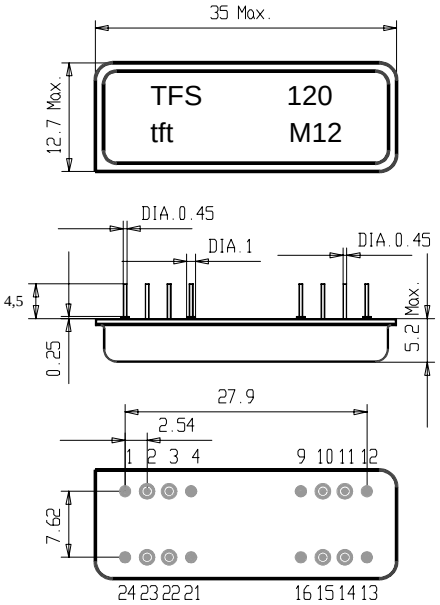
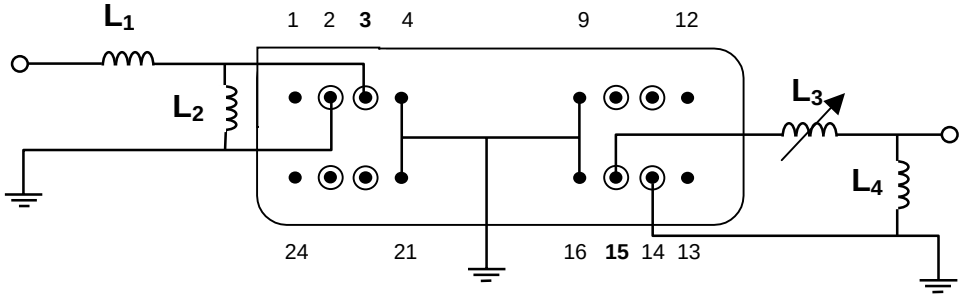
Package, pin grid 2,54 mm (All dimensions in mm)



Pin **3** - Input.
Pin 2 - Input RF Return.
Pin **15** - Output.
Pin 14 - Output RF Return.
Pin 1,4,9,12,13,16,21,24 Package Ground.
Pin 10, 11, 22, 23, Not connected.

50 Ω - Matching network (see Application Note):



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Air reflow temperature conditions

1st and 2nd air reflow profile

Name:	pre-heating periods	main-heating periods	peak temperature
Temperature:	150 °C - 170 °C	over 200 °C	255 °C ± 5 °C
Time:	60 sec. - 90 sec.	20 sec. - 25 sec.	

Air reflow profile

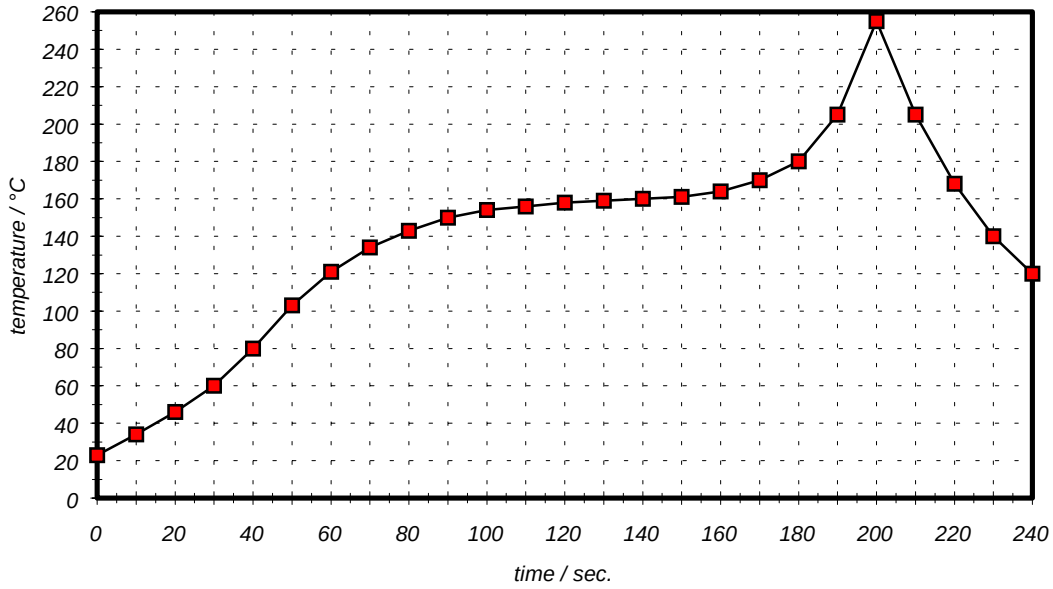

Table for temperature vs. time during the air reflow process

Tolerance of temperatures: ± 5 °C

time / sec.	temperature / °C	time / sec.	temperature / °C
0	23	140	160
10	34	150	161
20	46	160	164
30	60	170	170
40	80	180	180
50	103	190	205
60	121	195	230
70	134	200	255
80	143	205	230
90	150	210	205
100	154	215	180
110	156	220	165
120	158	230	140
130	159	240	120

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History

Version	Reason of Changes	Name	Date
1.0	.....	Roßbach R.	03.09.1996.
1.1	Delete balanced matching network.	Weinberg R.	29.06.1999.
1.2	- add definition of centre frequency $\mathbf{f_C}$; - remove information about source and load impedances ; - remove information about termination impedances ; - add "**Bandwidth"** , "**Amplitude ripple"** and "**Frequency deviation of $\mathbf{f_C}$ over temperature T "** to characteristics ; - mark $\mathbf{L_3}$ of matching network as adjustable; - change style of picture of matching network ;	Dunzow W.	23.03.2000.

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